



ADVANCING WELL USER PROTECTIONS THROUGH POLICY

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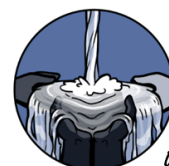
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**Clean Water
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Our Organization

Founded in 1984, Clean Water for North Carolina (CWFNC) works with communities across North Carolina to promote safe drinking water sources, environmental health, and Environmental Justice through strategic and technical assistance, policy advocacy and grassroots organizing.

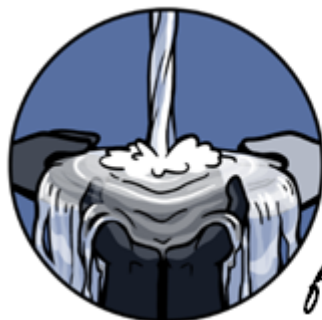
Our organizational culture is guided by the Principles of Environmental Justice. We work directly with overburdened rural, low-wealth, and black, indigenous, and people of color (BIPOC) communities to ensure that all people have a right to live, work, and play in clean and safe communities. **Together, we have the power and responsibility to work for a healthy and sustainable environment.**

Mission

To promote clean, safe water and environments and empowered, just communities for all North Carolinians through outreach, advocacy, education, and technical assistance.

Vision

Clean, safe, accessible water for all North Carolinians, protected by empowered, educated communities and a publicly accountable government and economy.



Clean Water
for **North Carolina**

Well User Protection

Well User Protection has been a core component of our Water Justice Program for over 35 years.

From our founding in 1984, we've worked to protect drinking water for everyone in NC, and to build awareness of public water supply sources and their vulnerability to many types of potential contamination.

Our research, advocacy and trainings have included supporting funding for low-income people whose wells are contaminated, collaborations with researchers on natural contaminants in NC wells, "baseline testing" before polluting operations begin, and intensive organizing and strategizing with impacted communities.



Water Justice Program Director, Rachel Velez, organizes well testing bottles in Durham County

Private Drinking Water Wells Facts & Figures



45 million Americans rely on private drinking water wells, about 15% of our nation's population



An estimated 2.4 million North Carolinians rely on private wells as their drinking water source



There is no federal oversight or protection for private well water quality under the Safe Drinking Water Act



From 2000-2010, only about 200,000 private wells had been tested in NC



Private well owners are responsible for the safety of their drinking water, including testing and treatment



Wells constructed after 2008 are required under state law to be tested for chemical and bacterial contamination – the only requirement for private wells in the state

Abstract

Clean Water for NC is a founding member of the North Carolina Well Water Working Group (WWWG).¹ Since its formation, researchers, community-based organizations, and local and state officials have met virtually to discuss strategies to improve private well water quality across the state, including promoting community support and devising policy recommendations.

Over the course of our roundtable discussions, WWWG members took part in brainstorming and discussing the current state of well user protections in NC, what other states are doing, and how we can build on lessons learned from different private well protection bills that have been introduced and passed over the decades.

Based on experience from our 35+ years of Well User Protection work, Clean Water for NC staff proposed that the following policy recommendations could increase state officials' capacity to monitor groundwater, promote health-protective measures among private well users, and assist with remediation efforts for private well users with known drinking water contamination:

Requiring Private Well Testing Prior to Real Estate Transfers (RETs)

Before the sale or leasing agreement of a property where a private well is the main source of drinking water is finalized, the well must be tested, the results must be shared between the buyer/seller or lessor/lessee, and county and state officials must be notified of results exceeding state and/or federal standards.

Increased Funding for Bernard Allen Memorial Emergency Drinking Water Fund (BAF)

Increase the funding, scope, and accessibility of the Bernard Allen Fund (BAF) to better address the widespread geogenic and anthropogenic groundwater contamination across the state and help reach those most in need of testing and remediation resources – especially our rural and low-income neighbors.

¹ NC Well Water Working Group, <https://ncwellwater.web.unc.edu/#:-:text=The%20NC%20Well%20Water%20Working,disparities%20analyses%2C%20and%20community%20support>

Introduction

Since our founding in 1984, Clean Water for North Carolina has focused on environmental health and drinking water. Because our state is heavily dependent on groundwater as a source of drinking water, that meant greater attention to both public drinking water supplies based on groundwater and private drinking water wells, which provide household water to more than 30% of North Carolina's population.² We have one of the highest proportions of private well users among US states, due to our significant rural population, and long-standing policies that limit government funding to construct and manage public water supplies in lower population areas.



The federal Safe Drinking Water Act (SDWA) only regulates water quality for public water systems serving more than 25 residents or 15 service connections.³ This leaves a large part of our population dependent on an unregulated water supply, with the well owners responsible for any testing, well maintenance and treatment.

² Pieper & Gibson, "Strategies to Improve Private-Well Water Quality: A North Carolina Perspective,"

³ "Understanding the Safe Drinking Water Act," *Environmental Protection Agency*, <https://www.epa.gov/sites/default/files/2015-04/documents/epa816f04030.pdf>

In 2003, after efforts to raise attention about the vulnerability of millions of NC well users, we were introduced to Rep. Bernard Allen, who represented a district in southeast Raleigh.

Rep. Allen's private well, along with nearly 20 others, was contaminated with various volatile organic compounds (VOCs) of unknown origin. As with several other communities we'd worked with, people had no idea what the source of contamination was and had very limited resources for testing their water or getting a replacement safe water supply.

Working with Rep. Allen, we formulated some policy changes that we believed would greatly increase the ability of well users to protect themselves and, for residents of limited means, to be able to get access to a safe replacement supply.

By 2005, those recommendations had been formulated into a draft bill, HB 1701, and introduced into the NC House of Representatives and sent to the Health Committee.⁴

Those proposals included:

- Requiring notification of well users within 1,500 feet of any known source of groundwater contamination, enabling them to test for most likely contaminants to determine if there was an environmental health threat.
- Creating a comprehensive, publicly available groundwater database and mapping system that would enable well users to research whether their existing well or one they planned to drill would be close to a known source of contamination (or another contaminated well) and take appropriate action.
- Establishing a recurring, annual fund of \$1 million to pay for testing for suspected contaminants from known nearby sites, provide an emergency safe drinking water supply for households with incomes less than twice the poverty level, pay for hooking up a home with a contaminated well to a public water supply line, or provide a whole house filtration system.
- Requiring testing of private drinking water wells prior to any purchase or leasing agreement of a residence or business is finalized.

⁴ H.B. 1701, "Protect Private Drinking Water Wells", Session 2005. General Assembly of North Carolina. <https://www.ncleg.gov/Sessions/2005/Bills/House/PDF/H1701v1.pdf>.

While this bill did not advance in committee in 2005, some components of these proposals were implemented the following year, at least to a limited extent.



Recommendation #1: Increase Funding for the Bernard Allen Fund

Overview of the Bernard Allen Fund

The Bernard Allen Drinking Water Emergency Fund (BAF or Fund) was formally established in 2006 after the passage of the North Carolina Well Construction Act.⁵

Although the BAF provisions in the Well Construction Act did not incorporate many of the proposals from the original bill, the establishment of the Bernard Allen Fund was a positive step forward to help protect private well users against sources of contamination and provide remediation services.

The fund was initially allocated \$400,000 by the General Assembly annually to improve NC's response to groundwater contamination, and more specifically, provide low-income households with safe drinking water.

Authorized Uses:

- Pay for notice to persons whose wells were at risk from contamination
- Pay for the costs of testing
- Provide an alternate drinking water supply to well owners affected by the contamination

Priorities:

- Review & research of at-risk sites that are eligible for testing assistance or alternate water supplies
- Test private wells known or suspected of anthropogenic contamination (non-naturally occurring)
- Provide a safe drinking water supply for low-income private well users

⁵ North Carolina Well Construction Act, N.C. Stat. Chapter 83, Article 7 §§ 87-83 – 87-98

The Fund is managed by the Inactive Hazardous Waste Branch of the Division of Waste Management within NC's Department of Environmental Quality (NC DEQ). A main priority of the Fund is to provide a safe drinking water source for low-income well users: eligibility for assistance through the BAF requires that the individual's annual household income does not exceed 300% of the poverty level.

Limitation #1: The Bernard Allen Fund Only Addresses Anthropogenic Contamination

The Bernard Allen Fund is managed through the Division of Waste Management (DWM) and only addresses contamination suspected of being caused by man-made activities (anthropogenic contamination).

Both the management of the Fund in DWM and its narrow focus on anthropogenic contaminants, unfortunately, fail to prioritize the dozens of naturally occurring contaminants across NC known to threaten groundwater sources and cause public health risks.

A 2014 report from a decades-long USGS publication found that 1 in 5 sampled wells had contamination of at least one pollutant in exceedance of EPA standards. The majority of these contaminants were found to be naturally occurring, or geogenic contaminants, including arsenic, manganese, radon and uranium.⁶

In North Carolina, the Carolina Slate Belt is a geologic formation extending across the central region and producing naturally occurring arsenic and other toxic metals.⁷ A 2012 study sought out to examine statewide arsenic trends and identify areas of concern. Of the over 63,000 private wells identified in this study, 7,712 showed detectable arsenic concentrations

Anthropogenic groundwater contaminants:

When the principal source and cause of groundwater quality pollution is related to human activities like municipal, industrial and agricultural practices

Examples: Arsenic, Cadmium, Chromium, Copper, Iron, Lead

Geogenic groundwater contaminants:

When the principal source of groundwater pollution is naturally occurring

Examples: Arsenic*, Zinc*, Nitrate*, Iron*

**Can enter groundwater through industrial activities*

⁶ DeSimone et. al, "The quality of our Nation's waters—Water quality in Principal Aquifers of the United States."

⁷ Carolina Slate Belt

between 1-806 parts per billion (ppb). Over 1,400 well samples exceeded the EPA drinking water standard of 10ppb.⁸

Authors identified historical trends in elevated naturally-occurring arsenic contamination in counties along the Carolina slate belt and found that levels had been elevated for over a decade. In some of these counties with high levels of geogenic well contamination, more than 50% of the population relies on private wells, and are also experiencing rapid population growth.

Studies such as these promote the need for greater prioritization of not only man-made well water contaminants but also those from naturally-occurring sources. Increasing the scope of the BAF to provide testing for wells suspected of both naturally occurring and man-made contamination can not only provide greater opportunities for well users to access safe drinking water, but also improve officials' understanding of and response to anthropogenic and geogenic contamination trends in NC wells.

Limitation #2: No Publicly Accessible Application Process

Individuals concerned about potential contamination of their private well cannot directly apply to the Bernard Allen Fund.

Instead, private well users are notified by state officials that their well is located near a hazardous waste site and that their well may be at risk of anthropogenic contamination. Officials will assess an individual's eligibility to receive assistance through the Fund, including if their household income is below the federal poverty level.

Information on the Fund is difficult to come by in general. No webpage for the Bernard Allen Fund has been published on the NC DEQ website, and only annual legislative reports are provided when searching for more information on the internet.

The BAF stands as the only state-funded testing and remediation program for well users, but it is not publicly accessible to private well users themselves. Providing more information about the Fund in general (online resources, NC DEQ website) and allowing individuals to directly apply can greatly increase the reach of the BAF in assisting private well users with contamination concerns.

⁸ Sanders et al., "Arsenic in North Carolina: Public Health Implications."

New Jersey, for example, provides assistance to their private well users facing contamination concerns through the New Jersey Spill Compensation Fund Claims Program (Spill Fund). Individuals and businesses can directly apply to the program, access multiple pages of information on the NJ Department of Environmental Protection (NJ DEP) website, and connect with state officials to learn more about eligibility and assistance provided.⁹

Limitation #3: Increase Funding for the Bernard Allen Fund

The Bernard Allen Fund annual budget must increase to address growing demands and to allow for the most permanent solution of municipal hook-ups.

As the North Carolina population continues to grow, including the Slate Belt, demand on the Fund will necessarily rise. Additionally, increased demand of the Fund is an anticipated function of the necessary broadened scope we propose to ensure adequate safety of groundwater drinking water.

Currently, the largest portion of the funds are used for sampling contaminated wells near hazardous waste sites, with only about 500 tested each year (see charts below). Costs for sampling vary depending on the type of potential contaminant: \$48 for volatile organic compounds (VOCs), \$70 for pesticides and \$48 for semi-volatile organic compounds. Of these 500 wells tested annually, approximately 200 wells (40%) are identified as having sources of contamination.

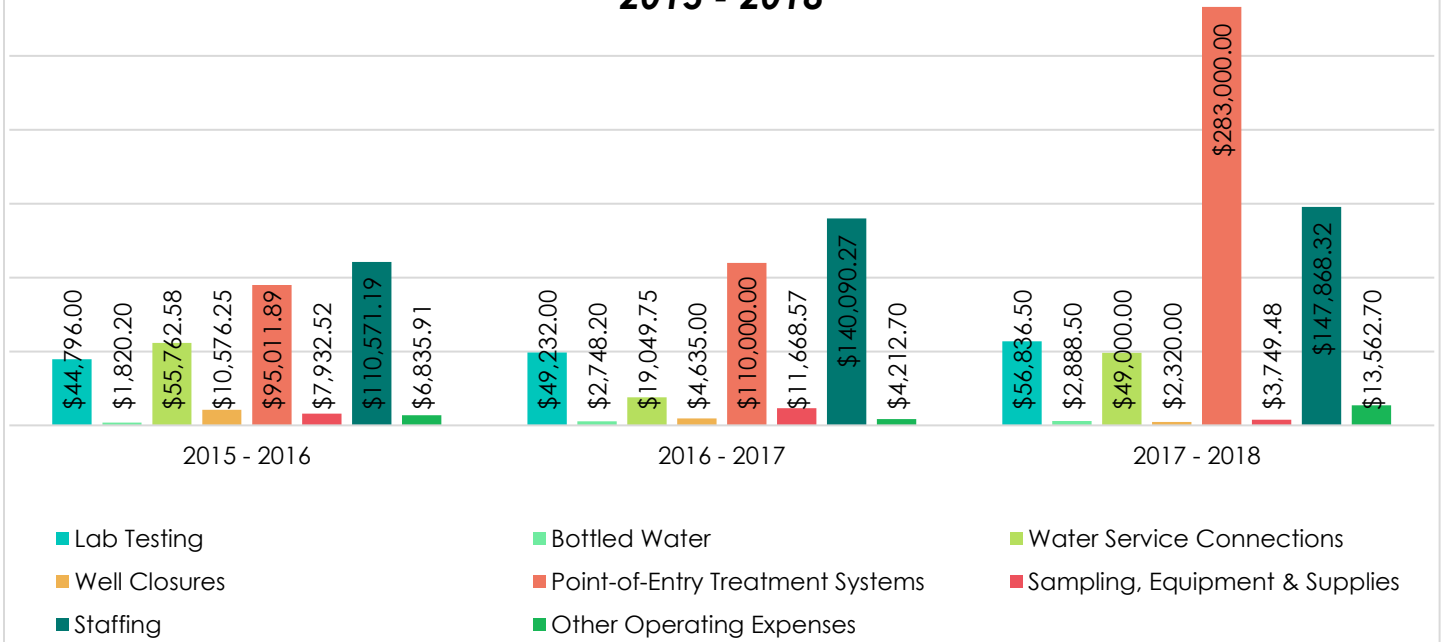
Another common use of the BAF is the provision of point-of-entry treatment systems, and the number of individuals offered this type of remediation through the fund has steadily increased over the years (see charts below). While point-of-entry treatment systems are a better option than providing bottled water, the solution is not totally permanent, and wells with these systems require maintenance and must continue to be tested each year to ensure they are working properly.

The most permanent solution to severe cases of well contamination is water service connection, which has not been prioritized by the BAF over the years. Unfortunately, some wells that have received assistance through the BAF, especially those in rural areas, are too far from a municipal water system (and

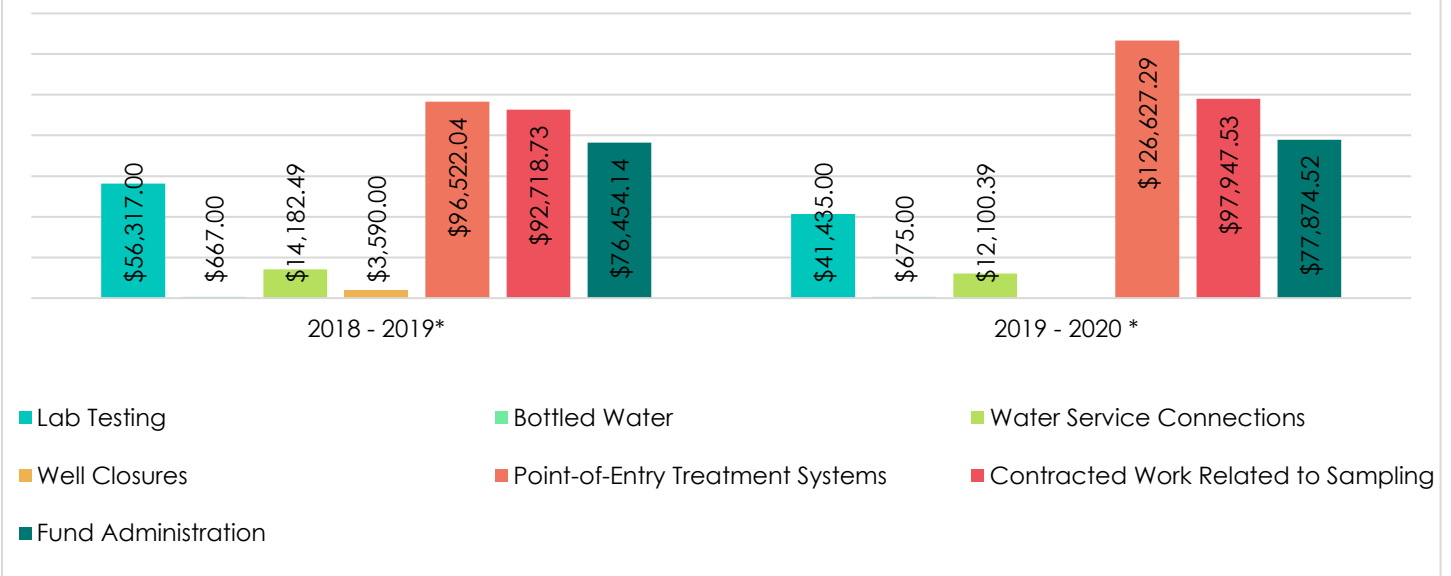
⁹ NJDEP SRP - Financial Assistance: The NJ Spill Compensation FUND Claims Program, www.nj.gov/dep/srp/finance/eca.htm.

therefore too expensive) to be eligible for a hook-up. The cost for municipal hookup cannot exceed \$50,000 per household (an adjustment made in 2013 from \$10,000 in previous years).¹⁰

Bernard Allen Fund Spending 2015 - 2018



2018 - 2020



¹⁰ (Note: The above charts represent the annual spending of the BAF. The asterisk next to the 2018-2019 session notes a shift in spending categories from previous years.)

Summary of Bernard Allen Fund Recommendations

Policy protections like the Bernard Allen Emergency Drinking Water Fund are essential to protect the health and drinking water quality of almost 3 million private well users spread across the state, especially our most low-income neighbors who may not be able to afford the cost of testing or treatment.

However, funding, accessibility, and testing limitations leave much room for improvement. We believe the following recommendations could greatly enhance the effectiveness of the BAF and create a robust testing and remediation program for private well users in North Carolina:

- Increase funding for BAF to prioritize municipal system hookups for private wells found to have contamination and additional testing demands
- Increase scope of testing to include geogenic, or naturally occurring, forms of contamination, like arsenic
- Public application for well users seeking financial assistance with testing and alternate water supplies, with clear information and guides
- Increasing the household income limit or provide a sliding scale for well users who may be able to afford some, but not all costs of testing and/or treatment



Recommendation #2: Require Well Testing Prior to Real Estate Transfers

Testing for both primary and secondary contaminants, as well as emerging compounds, in private well water prior to a real estate transfer allows both parties to make informed decisions as to the potability of the untreated water.

While there is no statewide database tracking the annual number of real estate transfers in NC, it would be no stretch to estimate that thousands of properties are bought or leased annually without the buyer or lessee having any information on the quality of the property's private well.

Because North Carolina law only mandates the testing of private wells that were drilled after July 2008, there is much that can be done to strengthen well user protection and NC DEQ's understanding of the quality of our state's groundwater.

As outlined above, the original 2005 proposals in the Bernard Allen Fund required water quality testing of a well and disclosure before finalizing any real estate transfer (RET) or rental agreement. Although not included in the final Well Construction Act, individuals considering dwelling in a residence with a private well could benefit greatly from this type of proactive policy. Looking at examples from other states can provide important insights.

Lessons from New Jersey's Private Well Testing Act

In September 2002, New Jersey became the first state in the nation to require in-depth testing of private wells after the Private Well Testing Act (PWTa) went into effect.

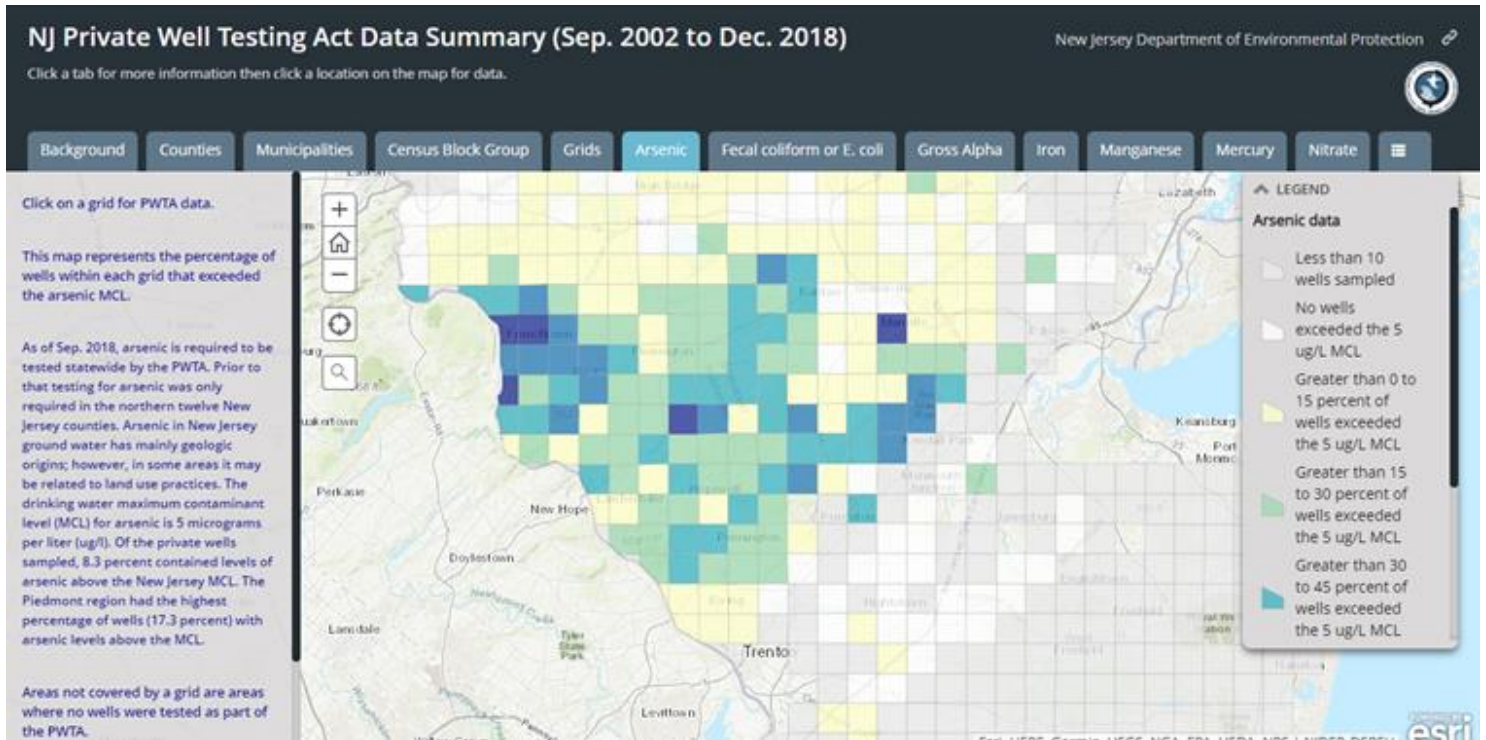
The NJ PWTa is a consumer information law that allows potential buyers or tenants to become informed about the quality of their drinking water and make informed decisions before a real estate transfer is finalized. The NJ program further allows state officials to collect and analyze sampling data to characterize groundwater quality, and identify individuals or communities exposed to high levels of drinking-water contaminants.



The New Jersey Private Well Testing Act:

- Requires sellers or buyers of a property with a private well to test the untreated groundwater for a variety of water quality parameters
- Requires both parties to review the test results prior to the transfer of the property
- Landlords are also required to test their property's well water every five years and provide tenants with a copy of the results

The test data is submitted electronically by the laboratories to the New Jersey Department of Environmental Protection (DEP) in order to notify county health departments of water quality issues and aid the state's analysis of groundwater quality. (The RET requirement proposed in the original 2005 NC bill was modeled after this law.)¹¹



Several maps were created to summarize PWTA data and are helping DEP and county officials assess the state of groundwater contamination in NJ. The PWTA program has been instrumental in the state's groundwater monitoring activities.

The goal of the PWTA is to ensure that purchasers and lessees of properties served by private, potable wells are fully aware of the quality of the drinking water source prior to the sale or lease of a residence. A long history of groundwater contamination from Superfund sites (NJ is home to over 114 active federal Superfund sites, the greatest in the country), other industrial pollution, and naturally occurring contaminants was the main impetus to the drafting and passage of this law. Almost 20 years after the PWTA was signed into effect, DEP officials have tested approximately 25% of the state's private wells, of which an estimated 1 million New Jerseyans are believed to rely on.

¹¹ New Jersey Department of Environmental Protection, "PWTA – Frequently Asked Questions," https://www.state.nj.us/dep/watersupply/pwta/pwta_faq.htm

Under New Jersey's PWTA, buyers and sellers are required to negotiate which party will pay to test for approximately 34 different parameters, including primary and secondary contaminants, using a NJ DEP pre-approved state certified lab.

New Jersey is not the only state with a RET law for private wells, but it certainly is considered the strongest, and should be looked to as a model for similar policy in NC.

Lessons from Oregon's Domestic Well Testing Act



Oregon passed the Domestic Well Testing Act in 1989 to combat the issue of nitrate contamination in the state's private drinking water wells.

The act requires that any seller of a property with a private well must have the well tested for nitrate and total coliform bacteria before accepting an offer. The law was amended in 2009 to also include testing for arsenic and require that buyers receive notification of the results, which are sent to the Oregon Department of Human Services and stored in a real estate transaction (RET) database.¹²

Hoppe, et. al., provides a "comparisons" section between the New Jersey and Oregon RET laws, strengthening the argument that should NC adopt legislation requiring well testing before real estate transactions, legislators and health officials should look to NJ as a strong model. For example:

- In the 20 years since the Oregon law was passed, it is estimated only 5% of all private wells in the state have submitted test results to the RET database.
- New Jersey was tested approximately 13% of their total estimated private wells in just the first 4.5 years of the PWTA program.

This is because NJ law makes the sale of a property contingent on the completion of the well testing and submission of written confirmation that both the buyer and the seller have received the results. There is no such requirement under the Oregon law making the sale of a home contingent on the well testing. Further, forms are not standardized in Oregon and submission is in paper format.

¹² Hoppe et al., "Private well testing in Oregon from real estate transactions: an innovative approach toward a state-based surveillance system."

New Jersey Private Well Testing Act vs. Oregon Domestic Well Testing Act

	NJ	OR
Testing and review of results by seller and buyer condition of RET	✓	✗
Well testing on rental properties	✓	✗
Confidentiality of test results	✓	✗
Outreach & Education	✓	✗

A 2009 amendment made it mandatory for the seller to provide the buyer with a copy of the test results, but there are no consequences for failing to do so.

The New Jersey law requires a public information and education program to inform the public and other stakeholders about provisions of the PWTA, health effects of consuming water from a contaminated private well, treatment techniques, and potential funding available for water treatment. Additional local outreach efforts are designed by each health jurisdiction in response to their assessment of local needs and available resources.¹³

The Oregon PWT-RET law does not require the state to undertake any outreach or educational activities. Even if the tested water fails to meet drinking-water standards, the laboratory is not required to notify the state or the local health jurisdiction about the exceedance.

Addressing NC Groundwater Contamination through RET Legislation

North Carolina can build on current legislation requiring the testing of new wells

¹³ Spanier, "Private Well Testing in Oregon from Real Estate Transactions: An Innovative Approach toward a State-Based Surveillance System."

drilled after 2008 by also requiring testing before real estate transfers. Using the same parameters of NC's existing private well testing program (N.C. Gen. Stat. 87-97), buyers and lessors will be able to understand the levels of arsenic, barium, cadmium, chromium, copper, fluoride, lead, iron, magnesium, manganese, mercury, nitrates, nitrites, selenium, silver, sodium, zinc, pH, and bacterial indicators present in the well of the property they are considering purchasing or renting.

A safe drinking water supply is essential to human health as well as protecting the value of residential property, and most of the contaminants prevalent in well water in North Carolina cannot be detected without laboratory testing. If a real estate transfer is finalized before the property owner or renter discovers that the groundwater is contaminated, there may be limited options to remediate the issue. Public water may not be available, or if available, would be very costly to hook up to it. If public water is not available, a well owner will have to install and maintain a filtration system, the cost of which will vary based upon the contaminants filtered. Adequate testing is essential to due diligence prior to the purchase or rental of any property supplied by a private drinking water well.



Conclusion

As part of roundtable discussions with the WWWG, Clean Water for NC staff proposed policy recommendations for increasing state officials' capacity to monitor groundwater, promoting health-protective measures among private well users, and assisting with remediation efforts for private well users with known drinking water contamination.

Clean Water for NC supports policies that provide North Carolina well users protection from both geogenic and anthropogenic contamination sources. As a state that is home to both the second largest population of individuals relying on this unregulated drinking water source *and* a myriad of geologic and industrial sources of groundwater pollution, the development and passage of well user protection laws should be a top priority for policymakers.

Specifically, policymakers should consider legislation and/or rulemaking requiring private well testing prior to Real Estate Transfers (RETs), much like any consumer protection law. Before a property with a well may be sold or leased, the well must be tested and results shared with the prospective buyer or renter.

Additionally, policymakers should consider increased funding, scope, and accessibility of the Bernard Allen Fund to test wells and remediate geogenic contamination sources. Accessibility to information and a public application would also significantly improve the efficacy of the existing program.

We hope this analysis of the Bernard Allen Fund and current RET legislation in other states provides a framework for steps North Carolina can take to ensuring all residents have access to a safe drinking water.

Learn more about our Well User Protection work at
www.cwfnc.org/project/project-well-user

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